

UNIVERSITY OF SOUTH FLORIDA

Major Research Area Paper Presentation

A Machine Learning Approach to Predicting Community Engagement on Social Media During Disasters

by
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For the Ph.D. degree in Computer Science & Engineering

Online users may utilize social media to discuss issues related to their environment. Understanding such discussions can help with predicting early warning signs for crisis situations and to enhance situational awareness and emergency response. In this empirical study, a framework was developed for binary and multi-class classification of Twitter data. We first introduce a manually built gold standard dataset of 4000 tweets related to the environmental health hazards in Barbados for the period 2014 - 2018. Then, the binary classification was used to categorize each tweet as relevant or irrelevant. Next, the multi-class classification was then used to further classify relevant tweets into four types of community engagement: reporting information, expressing negative engagement, expressing positive engagement, and asking for information. Results indicate that (combination of TF-IDF, psychometric, linguistic, sentiment and Twitter-specific features) using a Random Forest algorithm is the best feature for detecting and predicting binary classification with (87% F1 score). For multi-class classification, TF-IDF using Decision Tree algorithm was the best with (74% F1 score).

Tuesday, March 19, 2019

1:00 PM

ENB 313

THE PUBLIC IS INVITED

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